BUSA90500 Business Analytics Foundations

Credit Points:	37.5
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	2016, Parkville This subject commences in the following study period/s: March, Parkville - Taught on campus.
Time Commitment:	Contact Hours: 200 hours Total Time Commitment: Not available
Prerequisites:	None
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	None
Core Participation Requirements:	For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Student Support and Engagement Policy, academic requirements for this subject are articulated in the Subject Overview, Learning Outcomes, Assessment and Generic Skills sections of this entry. It is University policy to take all reasonable steps to minimise the impact of disability upon academic study, and reasonable adjustments will be made to enhance a student's participation in the University's programs. Students who feel their disability may impact on meeting the requirements of this subject are encouraged to discuss this matter with a Faculty Student Adviser and Student Equity and Disability Support: http://services.unimelb.edu.au/disability
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Subject Overview:	This subject equips students with the foundations and tools needed for a career in business analytics. The subject has five distinct components discussed below. **Computing and Programming for Business Problems** Solving problems in business often requires computer programming to manipulate, analyse, and visualise data. This component helps students, with little or no background in computer programming, learn how to design and write programs using a high-level procedural programming language, and to solve problems using these skills. Topics such as cyber security, cyber ethics and privacy regarding the collection of individual data will also be discussed. **Data Warehousing** Data warehouses are designed to provide organisations with an integrated set of high quality data to support decision-makers. They should support flexible and multi-dimensional retrieval and analysis of data. Topics covered include data warehousing and decision-making, data warehouse design, data warehouse implementation, data sourcing and data quality, on-line analytical processing (OLAP), dashboards, data warehousing for customer relationship management, and case studies of data warehousing practice. **Decision Making and Optimisation** There are an assortment of mathematical methods to obtain efficient solutions to a large variety of complex business problems. This component helps student formulate a business problem as a mathematical model and then use computational techniques to estimate and solve the model. Topics covered may include decision making under uncertainty, optimal location allocation of resources in business processes, decision trees, linear programming, integer linear programming, and Monte Carlo simulations. **Statistical Learning 1**

	With the explosion of available data, statistical learning, which refers to the analysis of complex datasets, has become an important field in many business contexts including marketing, finance, and even human resource management. The aim of this component and the follow-on component in Advanced Business Analytics is to help students learn how to extract relevant information from large amounts of complex data to make improved business decisions. Topics covered in this component include data exploration, resampling methods, linear and nonlinear regression, parametric classification techniques and model selection. **Personal Effectiveness 1** This component will be partially integrated into the other components of Business Analytics Foundations and is designed to help students develop the skills and knowledge required to effectively manage the early stages of their career. The “Personal Effectiveness Program” runs across the course and identifies specific needs of each individual student and then provides ongoing support, training, and opportunities to practice and perfect these skills. The program focuses on three core areas: 1 Communication skills: These skills include effective presentations, verbal communication, written communication, public speaking, and communicating technical material to non-technical audiences 2 Career development skills: These skills include case practice, interview skills, CV writing, networking, and business etiquette 3 Team skills: These skills include managing conflict, cultural awareness, giving and receiving feedback, and resilience 4 Business knowledge: these skills include understanding the business and industry context in which analytics professionals operate, understanding how different parts of organisations interact and meeting and networking with business leaders
Learning Outcomes:	On completion of this subject, the student should be able to: **Computing and Programming for Business Problems** 1 Use fundamental programming constructs (sequence, alternation, selection), data structures (arrays, records, lists, associative arrays), abstraction constructs such as functions, and basic algorithms to solve business problems. 2 Read, write, and debug programs to solve business problems. 3 Understand ethical issues regarding privacy and cyber security. **Data Warehousing** 1 Be familiar with data warehousing and its relationship to decision-making. 2 Understand the main concepts underlying data warehouse design and implementation, data quality and retrieval and analysis of data. 3 Be familiar with the role of data warehousing in customer relationship management. 4 Design a Data warehouse **Decision Making and Optimisation** 1 Appreciate the importance and application of mathematical models for solving several problems in business. 2 Understand the most relevant methods and the trade-off between methods required to solve these models including: decision trees, linear programming, integer linear programming, local search and meta-heuristics. 3 Perform optimization techniques to solve business problems. **Statistical Learning 1** 1 Analyse large datasets and convert raw data into relevant information for management decisions, using parametric and semi-parametric methods. 2 Determine which techniques to apply to different types of data. 3 Develop presentation skills to convey this information to a non-technical audience. **Personal Effectiveness 1** 1 Appreciate the importance of communication, career development, and team skills in career success. 2 Have identified communication, career development, and team skills that need improvement. 3 Be more comfortable making public presentations. 4 Be more comfortable receiving feedback. 5 Be able to create an effective CV.

Assessment:	Type of Assessment (Including Extent/Duration) Timing of Assessment Assessment % Computing and Programming for Business Problems A syndicate project expected to take 60 hours Week 7 25% Mid-term test (individual) Week 5 15% Final examination (individual, hurdle requirement) Week 9 60% Data Warehousing Syndicate project 1 (19 hours each person) Week 4 20% Syndicate project 2 (29 hours each person) Week 7 30% Final examination (individual; hurdle requirement) Week 9 50% Decision Making and Optimisation Syndicate project (equivalent of individual 1700 word assessment) Week 6 35% Midterm test (1 hour 15 minutes) 15% Final examination (individual; hurdle requirement) Week 9 50% Statistical Learning 1 3 × Individual in-class quiz (20 mins each) Week 3, 5, 7 15% Syndicate assignment 35% Final Examination (individual, hurdle requirement) Week 9 50% Personal Effectiveness 1 Cover letter and CV (600 words or equivalent; hurdle requirement) Week 9 50% Individual presentation (there will be regular presentations; the timing for any one student will be determined during the module) 40% Class participation (attendance at skills workshops, peer and instructor evaluation of contribution to class learning) Continuous 10%
Prescribed Texts:	None
Breadth Options:	This subject is not available as a breadth subject.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees